
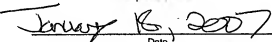


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| PRE-APPEAL BRIEF REQUEST FOR REVIEW | | Docket Number (Optional) 03-1481 | |
|---|--|--|----------------------------|
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| | | First Named Inventor Jay N. Bruggeman | |
| | | Art Unit 1746 | Examiner BELL, BRUCE F. |
| Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal. The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided. | | | |
| I am the <input type="checkbox"/> applicant/inventor. <input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96) <input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>54,919</u> | |  Signature Heath J. Briggs Typed or printed name (303) 572-6500 Telephone number | |
| <input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____ | |  Date | |
| NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*. | | | |
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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|----------------------------------|---|---|
| In Re the Application of: |) | Group Art Unit: 1746 |
| Bruggeman et al. |) | |
| |) | Examiner: BELL, BRUCE F. |
| Serial No.: 10/645,069 |) | |
| |) | |
| Filed: August 21, 2003 |) | |
| |) | |
| Confirmation No.: 6969 |) | <u>REMARKS ACCOMPANYING PRE-</u> |
| |) | <u>APPEAL BRIEF REQUEST FOR</u> |
| Atty. File No.: 03-1481 |) | <u>REVIEW</u> |
| |) | |
| For: "USE OF INFRARED IMAGING TO |) | |
| REDUCE ENERGY CONSUMPTION AND |) | |
| FLUORIDE CONSUMPTION" |) | |

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

These remarks accompany the Notice of Appeal and corresponding Pre-Appeal Brief Request for Review being filed contemporaneously herewith. In view of the following remarks, reevaluation and reconsideration of the application is requested.

Background

In this case, the Examiner has finally rejected all pending claims (Claim 1-2 and 7-15 and 20) as being obvious in view of a combination of three references, in particular U.S. Patent Nos. 4,668,350 to Desclaux ("Desclaux"); 6,440,294 to Cotton ("Cotton") and U.S. Patent Publication No. 2002/0146057 to Barron, Jr. ("Barron"). Because the cited art does not teach all claim limitations, and because one of ordinary skill in the art would not have been motivated, at the time the instant invention was made, to combine the cited references to achieve the instant invention, the Examiner has not established a *prima facie* case of obviousness and has improperly rejected the claims.

All Pending Claims Recite The Step Of Sensing Infrared Radiation On The Outer Surface Of An Electrolytic Cell Chamber To Measure Temperature

Claims 1-2 and 7-15 and 20 are pending. Claims 2, 7-8 and 14-15 are dependent from independent claim 1, claims 10 and 20 are dependent from independent claim 9, and claims 12 and 13 are dependent from independent claim 11. Independent claim 1 recites a process for controlling operations in a cell for producing aluminum comprising the step of, among others:

“(b) sensing infrared radiation on the outer surface of the chamber [of the cell] with an infrared sensor to determine an actual temperature [of the outer surface];”

Independent claims 9 and 11 recite similar limitations. Thus, all three independent claims, and thus all claims, recite methods for controlling cell operations, and the methods require the step of sensing infrared radiation on the outer surface of the chamber of the electrolytic cell to measure the temperature of the chamber. This temperature measurement is used to estimate the open area in the crust covering and/or whether additional AlF_3 is required (e.g., *see* steps d-e of Claim 1 and paras. 0018-0021 of the application).

None Of The Cited References Disclose, Teach Or Suggest Measuring Temperature Of An Outer Surface Of An Electrolytic Cell Chamber

As noted above, all pending claims have been rejected as being unpatentable over Desclaux, in combination with Cotton and Barron. As described in further detail below, none of Desclaux, Cotton or Barron teach, disclose or suggest, alone or in combination, sensing infrared radiation on the outer surface of an electrolysis cell chamber, or any other type of reactor chamber, to determine a temperature of that chamber.

Desclaux teaches measuring the temperature of an electrolytic cell, but only by using a thermocouple or other means internal to the cell, and specifically emphasizes the advantages of measurement effected within the wall or floor of the cell. (Desclaux, Col. 2, lines 8-23). As admitted by the Examiner, Desclaux does not teach sensing temperature using infrared. (Final Office Action, pp. 4). Cotton also does not disclose sensing temperature using infrared. Thus, the only reference of record that the Examiner relies on to teach the step of *sensing infrared radiation on the outer surface of the [electrolytic cell] chamber* is Barron.

While Barron does teach sensing infrared radiation to determine temperature (*see* Barron, para. 0014), Barron never discloses, teaches or suggests that his sensing technology could be used to *sense infrared radiation on the outer surface of the [electrolytic cell] chamber*, or any other type of reactor for that matter. Barron discloses various different monolithic materials, such as rods, blocks and wafers, for which a temperature is measured via infrared sensing. (Paras. 0014, 0033-0041).

Barron never discloses sensing infrared radiation to measure temperatures of non-monolithic materials, such as reactors like electrolytic cells. Indeed, as discussed in further detail below, the only document that discloses, teaches or suggests using an infrared sensor to determine the temperature of a reactor, such as an electrolytic cell, via infrared sensing is Applicant's patent application, which cannot be used to establish an obviousness rejection. MPEP § 2142. Thus, none of the references explicitly teach *sensing infrared radiation on the outer surface of the [electrolytic cell] chamber*, and thus the instant claims are not obvious. MPEP § 2143.03.

One Of Ordinary Skill In The Art Would Not Be Motivated To Combine Desclaux With Barron

Throughout this case, Applicant has repeatedly emphasized that, at the time of the instant invention, one of ordinary skill in the art would not have been motivated to combine Desclaux with Barron as there is no explicit or implicit teaching that would motivate one of ordinary skill in the art to combine those teachings to achieve the instant invention. Nonetheless, the Examiner has continued to use hindsight and the teachings of the instant invention to piecemeal an obviousness rejection.

As is well established, hindsight cannot be used to establish an obviousness rejection. Thus, the law requires that, when establishing obviousness based on a combination of references, there must be some suggestion, teaching or motivation to combine the references. (*In re Kahn*, 441 F.3d 977, 987 (Fed. Cir. 2006)). This motivation may be explicit, as from the teachings of the art, or may be shown implicitly, by showing what is suggested by combining the knowledge of one of ordinary skill in the art with the nature of the problem to be solved. (*In re Kahn* at 987-988). Applicant's disclosure cannot be used to establish obviousness. MPEP § 2142.

The Explicit Teachings Of The Art Do Not Provide A Motivation To Combine The Art

With respect to the explicit teachings of the cited art of this case, the Examiner admits that Desclaux does not suggest the use of an infrared sensor. As established above, as well as in Applicant's various responses, Barron does not suggest measuring the temperature of an electrolysis cell chamber, or any other reactor chamber or non-monolithic structure, via infrared radiation. Thus, based on the explicit teachings of those documents, one of ordinary skill would not be motivated to combine Desclaux and Barron to achieve the instant invention.

To Examiner Has Not Established That, At The Time Of This Invention, It Was Known To Measure The Temperature Of Electrolytic Cells Via Infrared Sensing

As noted above, to combine references to establish obviousness based on an implicit motivation or suggestion, the knowledge of one of ordinary skill in the art must be evaluated. Here,

the Examiner has not shown that it was within the knowledge of one of ordinary skill in the art, at the time of the instant invention, to measure the temperature of electrolytic cells or other types of reactors, via sensing of infrared radiation.

With respect to the knowledge of one of ordinary skill in the art, the Examiner states:

"the examiner has shown that the use of infrared radiation using an infrared sensor with respect to detecting the temperature of aluminum material remotely from the material is known to the person having ordinary skill in the art. The examiner in charge of this application has shown this as being the motivation to use infrared sensors for detecting temperature of aluminum material."

In response thereto, it is respectfully noted that the infrared sensor of the instant invention is being utilized to sense the "outer surface of the [electrolytic cell] chamber" and not bulk aluminum. Thus, although the Examiner may have illustrated that infrared energy can be used to detect a temperature of bulk aluminum, that illustration has no bearing on whether it is obvious to sense the outer surface of an electrolysis cell chamber, as required by the instant claims.

The Examiner further states:

"Temperature measurements made in a conventional manner have been typically used in the determination of operating parameters of conventional electrolytic aluminum cells, so to use a new infrared sensor to measure the temperature which gives an almost immediate response would be a motivation to allow the cell faster response times. As with infrared sensors used to measure the temperature in an ear drum, the response time is fast and almost immediate versus, a regular thermometer which takes time to respond when placed in the mouth. The same concept is true with an aluminum bath, if you used conventional temperature measuring techniques, the response time will be much slower than if an infrared sensor is used which shows almost immediate response times, which will allow the cell operation to be controlled in a more rapid time frame. Therefore, it appears that there is proper motivation to used such a device in the method as set forth in applicants instant claims."

It is respectfully submitted that this statement is not supported by any of the cited documents and hence is merely a conclusory statement based on hindsight. Rejections based on obviousness grounds cannot be sustained by mere conclusory statements. (In re Kahn at 987-988). Thus, the Examiner has not shown that it was within the knowledge of one of ordinary skill in the art, at the time of the instant invention, to measure the temperature of electrolytic cells or other types of reactors, via sensing of infrared radiation.

The Nature of The Problems Being Solved Are Disparate

As noted above, Barron utilizes a radiometric (e.g., infrared) sensor to measure the temperature of a target. Barron states that his invention provides a solution to overcoming the issue of interference from intervening media:

"Accordingly, when one or more of the above adverse conditions is present, the temperature reading indicated on the display (not shown) of the radiometric temperature sensor 11 may become unreliable or inaccurate. Accordingly, the user of the radiometric temperature sensor 11 would have no way of knowing that the displayed temperature reading is incorrect. This problem is overcome in the radiometric temperature sensor 11 by also using two additional signal parameters derived during the process of collecting the incident infrared energy 17." (Barron, Para. 0016; emphasis added)

Thus, the invention of Barron, relates to a problem with adverse conditions during temperature measurement. Conversely, the present invention solves a problem relating to process control for electrolysis cells by controlling additions of feed materials and/or by inspecting various features of the electrolysis cells, such as the crust. (Para. 0007-0010 of the instant application). These disparate purposes in combination with the Examiner's failure to demonstrate that it was within the knowledge of one of ordinary skill in the art to employ infrared sensors to determine temperatures of electrolytic cells clearly evidence that it would not be implicitly obvious from the teachings of Barron to utilize an infrared sensor to sense infrared radiation on an outer surface of a chamber.

In view of the foregoing, it is respectfully submitted that the Examiner has not established, whether explicitly or implicitly, that one of ordinary skill in the art would be motivated to combine Desclaux with Barron. Therefore, the Examiner has not established a *prima facie* case of obviousness.

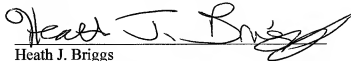
All Pending Claims Are Novel and Non-Obvious

In view of the above arguments, it is clear that the cited references do not teach all claim limitations. Furthermore, there is no explicit or implicit motivation to combine Desclaux with Barron. Thus, the Examiner has not established a *prima facie* case of obviousness. It is therefore respectfully submitted that all pending claims are novel and non-obvious, and allowance of all pending claims is requested.

Respectfully submitted,

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Date: January 16, 2007



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